MONTANA FISH, WILDLIFE AND PARKS
HUNTING / TRAPPING SEASON SUPPORTING INFORMATION

Species: Gray Wolf
Statewide: Wolf Management Units 1-3
Year: Unknown, but upon successful delisting from the federal Endangered Species Act, with concurrent delisting from the Montana Endangered Species Act; potential implementation during the 2008-09 and 2009-2010 biennial season time frame.

1. Describe the proposed season and provide a summary of prior history.

EXISTING REGULATION:

None.

Historical and Legal Context: The gray wolf was probably extirpated from Montana by the 1930s. Currently, the wolf is listed under the federal Endangered Species Act of 1973 and under Montana's Nongame and Endangered Species Conservation Act passed in 1973. Species recovery efforts through legal protection, natural recolonization in northwest Montana beginning in the late 1970s, and reintroduction into Idaho and Yellowstone National Park in the mid-1990s resulted in the northern Rockies gray wolf population achieving the numeric, biological recovery criteria in 2002.

A second requirement to delist the northern Rocky Mountain wolf population was the development of adequate regulatory mechanisms (state laws and management plans) by the states of Montana, Idaho, and Wyoming to assure that the population remained viable and self-sustaining. Each state is expected to maintain at least 10 Breeding Pairs (by the federal recovery definition) and contribute to the overall maintenance of a recovered, genetically connected population in the tri-state region in perpetuity.

Montana's planning effort for conservation and management of a delisted wolf population began with a Governor-appointed diverse stakeholder group called the Wolf Advisory Council in 2000. The group deliberated the complex social and biological aspects of wolf management and adopted a set of Guiding Principles by consensus. Their Guiding Principles were presented to former Governors Racicot and Martz in 2000 and 2001, respectively. The Department then formally developed and adopted a management plan based on the work of the Council through completion of an environmental impact statement (Montana Fish, Wildlife & Parks 2003). The final plan establishes an adaptive management framework and provides direction to implement public hunting and trapping as management tools within the overall program, similar to how other wildlife species are managed.

The final Montana Wolf Conservation and Management Plan was approved by the Commission with a final record of decision signed by the FWP Director in September 2003. The plan was submitted to the U.S. Fish and Wildlife Service for review and was approved in January 2004.

Idaho's management plan was also approved, but the Wyoming plan was not. Thus, delisting in the northern Rockies was officially delayed in early 2004.

Later that year, the Department and the U.S. Fish and Wildlife Service began discussing the possibility of an Interagency Cooperative Agreement that would delegate federal authority to Montana and allow the Department to begin implementing as much of its federally-approved plan as allowed under federal regulations. When that possibility was affirmed and the Department began getting federal funding, FWP amended the Record of Decision in May 2004. FWP selected the Contingency alternative (i.e. implement as much of the federally-approved plan as possible and within the constraints of the applicable federal regulations). By mid-2005, a statewide agreement was finalized and the Department has been the lead agency for all wolf conservation and management activities statewide, implementing most aspects of the state's plan but not all due to the federally-protected status. Thus, the Department was prohibited from implementing the regulated public hunting and trapping component for as long as wolves remain listed under the federal Endangered Species Act.

The Department has had a full-time wolf program coordinator since 2000 and hired field staff to facilitate transition from the U.S. Fish and Wildlife Service to FWP beginning in fall, 2004. FWP has led all monitoring, coordinated research activities outside national parks, done public outreach, and addressed wolf-livestock conflicts as the lead decision maker regarding lethal control as guided by the state's plan and the federal guidelines. The Department has gained considerable experience and knowledge about wolves on the Montana landscape since that time. FWP has prepared 2 annual reports (2005, 2006), and the 2007 annual report will be completed by March 1, 2008. The most recent annual report available covering all of the northern Rockies was published in March 2007 for the 2006 calendar year. See U.S. Fish and Wildlife Service et al. 2007.

In February 2007, the U.S. Fish and Wildlife Service published a proposal to delist the gray wolf in the northern Rockies Distinct Population Segment pending the approval of adequate regulatory mechanisms (management plans and state laws) from Montana, Idaho, and Wyoming. While the Montana and Idaho plans had been approved in 2004, the Wyoming plan was only recently approved. In February 2008, the U.S. Fish and Wildlife Service is expected to issue a final rule officially delisting the gray wolf in the northern Rockies. It takes effect 30-days from publication.

At that time, Montana's federally-approved Gray Wolf Conservation and Management Plan becomes fully implementable and Montana Code Annotated takes effect. Under MCA, the wolf will automatically be reclassified from state endangered to a nongame species in need of management for which the FWP Commission and Department can establish rules and regulations pertaining to taking, possession, transportation, exportation, processing, sale or offer for sale, or shipment considered necessary to manage nongame.

Contemporary Context and Montana's Plan:

Montana's Wolf Conservation and Management Plan was developed over a 3.5-year period and was widely vetted and closely scrutinized. It underwent extensive public comment and professional peer review and is regarded as balanced in its tone and approach to addressing the new opportunities and challenges of a restored wolf population. The Department has demonstrated during the interim period leading up to federal delisting that it will manage and conserve wolves in a socially and biologically responsible way.

The plan itself is based on adaptive management principles, providing direction to offer opportunities for regulated public hunting and trapping when there are greater than 15 Breeding Pairs statewide. Harvest opportunity should be proportional to the population status and consistent with sustaining viable wolf populations into the future, thereby precluding reclassification under federal law. If the number of Breeding Pairs drops below 15, public harvest is precluded and all management options become more conservative to prevent a population decline that triggers an emergency relisting.

Incorporating public hunting and trapping into the overall wolf management program will enable the Department to more fully incorporate wolves into Montana's wildlife heritage by enabling sportsmen and women to participate in wolf conservation and management similar to other wildlife species. This will help develop an additional constituency to advocate for its conservation, as has been the case for mountain lions. Wolves would be managed more proactively and in conjunction with natural prey populations and other carnivores in a more ecological manner.

Montana wolves routinely encounter livestock and cross private property. Public hunting and trapping will also help the Department more proactively address the risks to livestock posed by a recovered wolf population. Wolf depredation on livestock, while difficult to predict and prevent, tends to increase with an increasing wolf population. Collaboration between private landowners and licensed hunters / trappers has the potential to decrease the risk of livestock depredations by decreasing localized wolf density and/or through harvest of wolves with a depredation history. See Sime et al. 2007*a*.

The Department will fulfill its commitment to maintain the recovered status of wolves in Montana and contribute to maintenance of a recovered northern Rockies population. To sum up Montana's wolf management program in the words of the Wolf Advisory Council from *The Report to the Governor*:

> "We, the Council, recognize wolves as a species native to Montana. Integrating and sustaining wolf populations in suitable habitats will occur within the complex biological, social, economic, and political landscape of Montana. The State of Montana must ensure human safety, safeguard Montana's livestock industry, maintain viable wildlife populations, and uphold the support of people with diverse public interests. The State intends to implement positive management programs to make sure that recovery is complete and wolves are integrated as a valuable part of our wildlife heritage." (Montana Wolf Advisory Council, 2000).

The Department is undertaking the development of a new tentative wolf hunting / trapping season concurrent with the federal delisting process so that adequate time could be afforded for technical staff work, data analysis, and public involvement. This also allows the process could proceed and be completed within a transparent, thoughtful, and deliberative atmosphere through the traditional agency / Commission decision-making processes rather than through political, legislative or judicial venues.

PROPOSED REGULATION:

Under the biennial season-setting process, this tentative wolf season structure proposal is presented to the Commission for the 2008-09 and 2009-10 seasons, with the assumption that wolves would be successfully delisted sometime during this two-year period.

This proposed tentative regulation creates the basic season structure for a public wolf harvest. Two different time periods would be created, with legal means of take to include firearms, archery and leg-hold traps. The tentative season structure suggests opening and closing dates, 3 management units, and other general rules and regulations pertaining to licensed harvest.

The proposed wolf season would run from September 15 through December 31 of a calendar year. Firearms and bow/arrow would be a legal means of take from September 15 to November 30. A leg hold trap would be a legal means of take under a special trapping permit from December 1 through December 31. There would be a bag limit of one wolf per license holder. Opening the season on September 15 assures that young of the year will have learned how to kill natural prey. Closing the season on December 31 insures adequate time for a pack to replace a breeding adult prior to the peak of breeding activity in mid-February. Partitioning also addresses concerns about conflicts between user groups.

Wolf harvest under a special wolf trapping permit would be on a limited entry basis (finite number of special permits available) due to an assumed higher success rate through trapping compared to opportunistic taking by hunters.

In year one of the biennial wolf regulations, no special wolf trapping permits would be offered. The total wolf harvest quota will be allocated to the fall hunting season that runs from September 15 to November 30.

Wolf Management Unit boundaries were determined on the basis of real biological differences in the wolf sub-populations in each of the three areas. Differences were found with respect to human caused mortality patterns, wolf-livestock conflicts, population growth rates (immigration and birth), influence of adjacent wolf populations and wolf dispersal to/from from Idaho, Canada, and Yellowstone National Park into Montana (Mitchell et al. *in press*).

Wolf harvest may not be facilitated by the use of artificial baits, domestic dogs, spotlights or other artificial light, two-way communications devices, night vision equipment, electronic calls, use of aircraft for spotting or harvesting. This proposed basic structure and the accompanying

more detailed regulations are modeled after those for game or furbearing animals, consistent with MCA and the principles of fair chase.

The Department would provide the opportunity to harvest a wolf through the combination of a quota / permit system that will closely monitor and track total harvest, enabling the Commission and/or the Department to close the season when the pre-determined quota has been reached and upon 24-hour notice. Hunters and trappers can obtain harvest status and closure information by calling a 1-800 number or checking the FWP website. Progress towards filling quotas will be closely tracked by the mandatory requirement for a hunter or trapper to personally report their kill within 12 hours by calling the 1-800 Wolf Reporting Number.

The Department is not proposing tentative quota or permit levels (i.e. how many wolves taken and where) at this time due to the uncertainty about when a season could be implemented for the first time and what the actual wolf population minimum estimated size will be at the time of successful delisting. Therefore, the Department will defer the actual quota / permit setting decision process. However, this tentative season structure proposal will provide information about the Department's efforts to consider a range of harvest scenarios to determine the appropriately conservative levels that would not jeopardize the population or cause it to drop below 15 Breeding Pairs. When considering quota / permit recommendations in the future, the Department will consider other sources of mortality, reproduction, and other factors such as wolf-livestock conflict patterns, disease, etc. See #4 below.

2. Why is the proposal necessary?

This tentative proposal, as it advances through the biennial season setting process, is vehicle by which the Department is developing the step-down details about how wolves would be hunted or trapped in Montana post delisting and when there are greater than 15 Breeding Pairs. Adoption of a tentative season structure now enables FWP to solicit public comment on a more detailed hunting / trapping proposal than that presented in the state's wolf plan.

It would also facilitate timely adoption of a final wolf season structure and appropriate quota or permit levels (eventually) for implementation upon successful delisting.

3. What is the current population's status in relation to management objectives?

Biological recovery was first achieved in 2002 and the northern Rockies population has exceeded recovery goals each year since. Both the Montana and the northern Rockies populations have increased each year, respectively. The Department monitors the statewide population and reports a minimum estimated number of total wolves and Breeding Pairs on December 31 of each calendar year. Figures 1 and 2 show trends 1979 – 2006. At the end of 2006, Montana had a minimum of 316 wolves and 21 Breeding Pairs.

The increase in the Montana wolf population since 2004 is due in part to the Department's increased monitoring efforts compared to previous federal efforts. It is also due in part to real numeric increases in the population, as reflected by the increased number of verified packs (defined as any two or more wolves traveling together and holding a territory).

In recent years, the increase in the Montana population has occurred in western Montana, and particularly along the Montana-Idaho border. For example, there were an estimated 11 packs with a territory that straddled the state border in 2007. Each border pack is tallied in the state minimum population estimate within which it dens, respectively. Therefore, each pack is counted in the Northern Rockies totals and towards a state, but no pack is counted twice in two different states. The southwest Montana population in the seven counties surrounding Yellowstone National Park has been relative stable, although there is turnover in the population at the individual and pack level. FWP has also documented growth from within the Montana population as individual collared wolves dispersed from natal packs and started new packs. At the time of successful delisting, the Department anticipates that Montana's wolf population will exceed the December 2006 levels. Complete information about wolf population trends, individual packs, dispersal, wolf-livestock interactions, and recent wolf-related research can be found in Sime et al. 2007*b*.

Montana is committed to maintaining a minimum of 10 Breeding Pairs by the federal recovery definition. Under the Montana wolf plan, public hunting and trapping can be implemented if there are greater than 15 Breeding Pairs statewide. Between 10 and 15 Breeding Pairs, no harvest opportunity is offered. Falling blow 10 Breeding Pairs would likely trigger an emergency relisting under the federal Endangered Species Act.

In general, only about 1/3 of Montana wolf packs of two or more wolves qualify as a Breeding Pair -- the more specialized federal recovery definition (an adult male and an adult female and at least two pups on December 31). This can be due to a variety of reasons, including: death of one of the adults and/or pups, the pair didn't breed and den, or the pups were born but didn't survive due to diseases such as canine parvo virus. Because of this observed natural and human-related variability, Montana will always need to maintain more "packs" than Breeding Pairs.

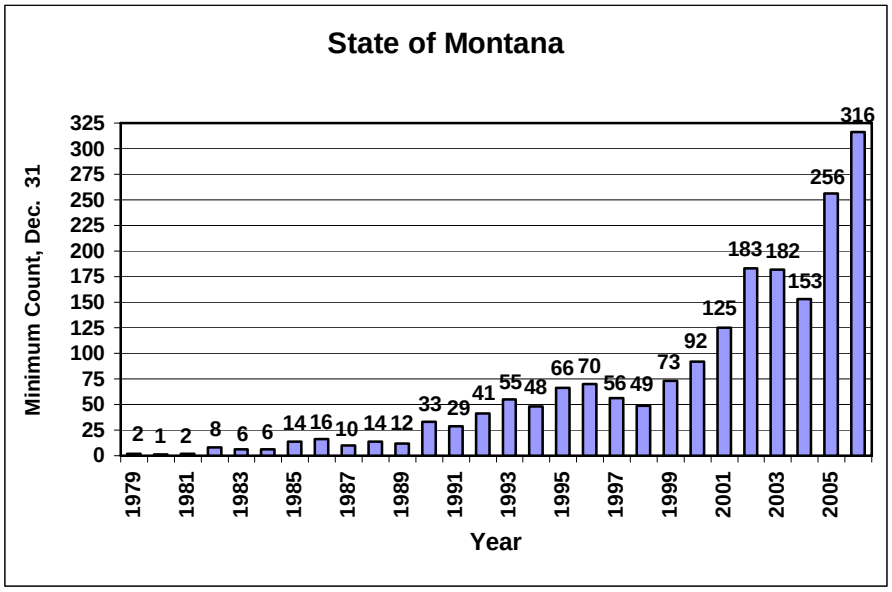

Figure 1. Minimum estimated number of wolves in Montana. The preliminary 2007 minimum estimate is around 400 wolves.

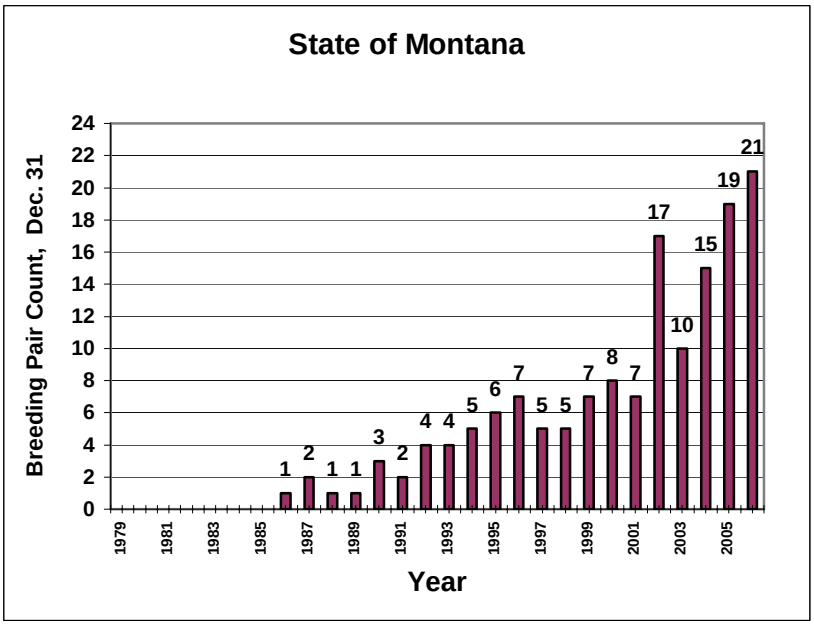

Figure 2. Estimated number of Breeding Pairs by the federal recovery definition in Montana (an adult male and an adult female and at least 2 pups at the end of the year). The preliminary 2007 minimum estimate is around 40 breeding pairs.

4. Provide information related to any other factors that have relevance.

Wolves are one of the best studied of large carnivores, and scientific studies have been conducted in a wide variety of habitats and biological systems. As a canid, wolves are ecologically adapted to withstand higher mortality rates and have a higher reproductive potential than other large carnivores such as black or grizzly bears. For example, wolves have a younger age at first reproduction (yearling), average litter sizes between 4 and 6 pups, the potential for multiple litters per pack, and an annual reproductive interval. Therefore, wolf populations have the potential to increase or decrease rapidly. Important mitigating factors are due to natural prey density, domestic livestock density, mortality due to all causes, birth rates, and immigration / emigration rates.

The Department is aware of the connectivity requirement of successful wolf recovery in the northern Rockies and Montana's unique place on the landscape to facilitate connectivity between the Canadian provinces and the northern Rockies wolf population. Monitoring of radio-collared and unmarked wolves by managers in Montana, Idaho, Wyoming, and Yellowstone National Park has documented wolf dispersal within and among the three states, two Canadian provinces, and national parks. Non-invasive genetic sampling can also help document dispersal and connectivity.

Primary natural prey species populations (e.g. white-tailed deer in western Montana and elk in southwest Montana are secure and generally exceed population objectives in many hunting units.

Similar to the Midwest states (Minnesota, Michigan, Wisconsin), as wolf numbers have increased in the northern Rockies, so has the number of confirmed livestock depredations. Typically, the number of wolves killed in response to depredations increased, too. Montana is no different. Yet, despite the increase in the absolute number of wolves killed, even when combined with other mortality causes (e.g. vehicle strikes, disease, or other causes), the Montana wolf population has continued to increase.

The Department has been monitoring wolves and conducting routine disease surveillance since the mid-1990s. Data and field observations to date indicate that disease has not been a significant factor affecting wolf reproduction and/or mortality patterns or the increasing population trend even though individual wolves may be affected. The continuation of monitoring efforts will help the Department detect significant events or population level effects.

As noted previously, the Department is not proposing quotas / permit levels at this time. Nonetheless, it is appropriate to describe how that would be approached in the future. The Department establishes actual quotas / permit levels (the prescribed number of animals to be harvested) as tentative and final proposals annually for all species in the late spring and late summer, respectively.

Department has been carefully considering the need to begin wolf harvest conservatively due to uncertainty. It is important that the Department fully considers potential harvest quotas relative to the commitment to maintain a recovered Montana population and that its secure status not be jeopardized after the first year of public harvest or at anytime thereafter. Therefore, the Department completed a simulation modeling exercise to provide insight into the effects of an initial harvest season on wolf population parameters in the following year.

The simulations were designed to reconcile the fact that harvest of wolves operates on individual wolves, while state and federal policy dictates that the status of the wolf population in Montana is measured by successfully Breeding Pairs (BP), which is a characteristic of wolf packs. The primary goal of the simulations was to gauge the risk posed by implementing a quota-based harvest system in the three wolf management areas for one year by considering the population's status the following year.

The basis for the simulations was a model of wolf population dynamics that included output on the number and size of wolf packs and the total number of wolves. The model includes birth, death, immigration, and emigration vital rates for each of the three wolf management areas, as well as the pack-living social structure of wolves. The model assumes that these vital rates are known with certainty, constant, and equal to those observed in each area in the previous year. Additionally, the model assumes that mortality rates are constant for individual wolves, that immigration results in the formation of new packs of a consistent age structure and at a constant rate within each area, and that reproduction results in a consistent number of pups and only in packs that existed in the previous year in each area. Additionally, the minimum population size in each area was increased by 10%, which represents a minimum number of individual, non-pack wolves in most populations according to the literature. Given these constraints and assumptions, the size and trend of the wolf population in the following year were predicted using this model.

Using predictions from the population model, a simulated harvest season was used to estimate how harvest might affect the number of wolves, number of packs, and the number of BPs in the following year. The simulations represented quotas for the following year, set as percentages of the minimum known wolf population size in each area, ranging from 0% to 75% of the population in each area, and included all possible combinations of these rates at 5% increments (for a total of 4096 combinations of harvest rate quotas). The harvest simulations made the simplifying assumptions that wolf mortality due to public harvest is random and is additive to wolf dispersal and all other forms of mortality, including natural mortality, illegal wolf harvest, and mortality due to depredation in each area.

After the simulated harvest was implemented, the algorithm dealt with the fact that wildlife managers do not have perfect knowledge of the number of BP's in the state due to the logistical challenges associated with monitoring a wide-ranging, low density carnivore. The statewide number of BP's, along with lower 95% confidence interval endpoints, were estimated under three scenarios representing different levels of knowledge about the number of BP's from the field. These included the "status quo" scenario, under which managers know the BP status of approximately 75% of the packs in each area, the "half status quo" scenario, under which managers know the BP status of approximately 33% of the packs in each area, and the "poor info" scenario, under which managers know the BP status of no packs at the end of the year. In all three scenarios, the BP estimator (Mitchell et al. *in press*, Gude et al. *in review*) was used to estimate the number of BP's amongst the packs for which there was no field knowledge.

Each combination of harvest rates was simulated 1000 times, and the number of wolves, wolf packs, and BPs of wolves after one harvest season was estimated after each simulation run. Risk was defined as the percentage of simulation runs in which lower confidence interval endpoints for the estimated number of BP under the three field knowledge scenarios fell below 15 BP. This threshold represents a boundary below which a harvest season in the following year would be cancelled, as dictated by the state management plan. The general results thus far indicate that the Northwest Montana wolf management area is the most sensitive area for the random harvest of wolves, if the goal is to maintain at least 15 BPs in the state. Also, differential harvest rates in each of the three management areas could be implemented and resulted in similar population-level results, implying that public harvest could be a useful tool to address other management considerations such as livestock depredation or connectivity. The simulations also indicate that the Montana wolf population can support a harvest season and remain stable to increasing for one year, given the population vital rates observed in 2007.

5. Briefly describe the contacts you have made.

As described previously, the idea of using hunting and trapping as a management tool similar to other wildlife is not new and has been a part of the public conversation about Montana wolf conservation and management since 2000. It was included in the preferred alternative in the environmental impact statement, completed in 2003. In 2004, the U.S. Fish and Wildlife Service approved Montana's plan. Since then U. S. Fish and Wildlife Service representatives have consistently and repeatedly expressed support for regulated public hunting and trapping as viable management tools (Bangs et al. *In press*).

More generally, FWP wolf program staff as well as other FWP staff frequently give programs or provide information about wolves or their management to the public, diverse advocacy and trade organizations, other state / federal agencies, and private landowners in a wide variety of formal and informal settings.

In August and September 2007, Department representatives presented some concepts and solicited input from all seven of FWP's Regional Citizen's Advisory Committees. These meetings were announced and advertised. Other public attendees had the opportunity to comment, if desired.

Also in the fall 2007, the Department created an email in box especially intended to receive public comments about the wolf program and the tentative season proposal. Special provisions will be made to accommodate a potentially high volume of electronic public comment.

The original Wolf Advisory Council will meet December 9/10, 2007 to provide feedback to the Department on hunting / trapping concepts and more specific harvest objectives.

The Department has also been working very closely with the University of Montana Cooperative Wildlife Research Unit over the last two years to develop and test alternative wolf population estimation methods that would not require radio collars in each wolf pack. This collaboration resulted in one peer reviewed journal article that will be published in the Journal of Wildlife Management in spring 2008. A second journal article testing the robustness of alternative population estimation procedures is undergoing an informal peer review and will be submitted for publication to a peer reviewed professional journal within 1-2 months.

Other collaborative efforts underway with the UM Cooperative Wildlife Research Unit include: 1. developing and testing alternative monitoring strategies; 2. modeling potential outcomes of the first season of harvest implementation under various scenarios and combinations of monitoring intensity and harvest rates as described above; 3. providing funding and collaborating in a regional research project on wolf monitoring / population estimation; and 4. initiating research specific to Montana and as a part of the larger regional study.

Assembled by: Sime
Date: 12-6-07

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